

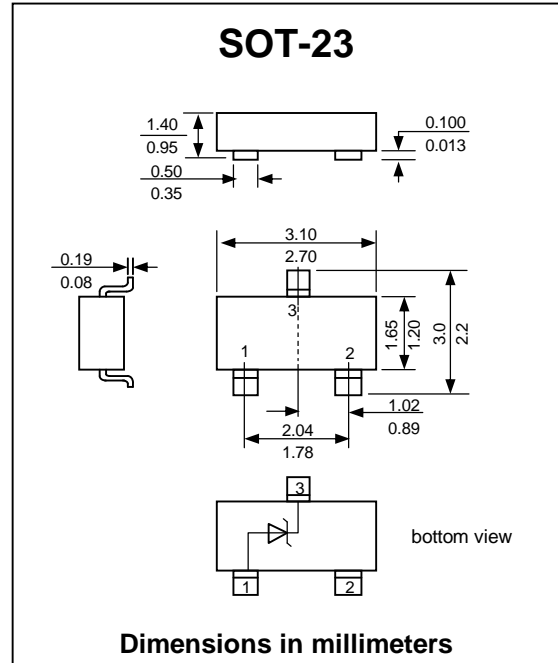
BZX84C Series

This series of Zener diodes is offered in the convenient, surface mount plastic SOT-23 package. These devices are designed to provide voltage regulation with minimum space requirement. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.

FEATURES :

- * 225 mW Rating on FR-4 or FR-5 Board
- * Zener Breakdown Voltage Range 2.4 V to 75 V
- * Package Designed for Optimal Automated Board Assembly
- * Small Package Size for High Density Applications
- * ESD Rating of Class 3 (>16 KV) per Human Body Model
- * Pb / RoHS Free

ZENER VOLTAGE REGULATORS



Absolute Maximum Ratings (Ta = 25 °C)

| RATING | SYMBOL | VALUE | UNIT |
|--|-----------------------------------|---------------|-------|
| Total Power Dissipation on FR-5 Board, (Note 1) @ Ta = 25 °C | P _D | 225 | mW |
| Derated above 25 °C | | 1.8 | mW/°C |
| Thermal Resistance (Junction to Ambient) | R _{θJA} | 556 | °C/W |
| Total Power Dissipation on Alumina Substrate, (Note 2) @ Ta = 25 °C | P _D | 300 | mW |
| Derated above 25 °C | | 2.4 | mW/°C |
| Thermal Resistance (Junction to Ambient) | R _{θJA} | 417 | °C/W |
| Junction and Storage Temperature Range | T _J , T _{STG} | - 65 to + 150 | °C |

Notes :

- (1) FR-5 = 1 x 0.75 x 0.62 in.
- (2) Alumina = 0.4 x 0.3 x 0.24 in, 99.5% alumina

ELECTRICAL CHARACTERISTICS

(Ta = 25 °C unless otherwise noted, V_F = 0.90 V Max. @ I_F = 10 mA)

| TYPE NO. | Marking | V _{Z1} @ I _{ZT1} = 5 mA (Note 1) | | | Z _{ZT1} @ I _{ZT1} = 5 mA | V _{Z2} @ I _{ZT2} = 1 mA (Note 1) | | Z _{ZT2} @ I _{ZT2} = 1 mA | V _{Z3} @ I _{ZT3} = 20 mA (Note 1) | | Z _{ZT3} @ I _{ZT3} = 20 mA | Max. Reverse Leakage Current I _R @ V _R | | Θ _{VZ} (mV/k) @ I _{ZT1} = 5 mA | | C (pF) @ V _R = 0 f = 1 MHz |
|-----------|---------|--|-----|------|---|--|------|---|---|------|---|---|------|--|------|---|
| | | (V) | | | (Ω) | (V) | | (Ω) | (V) | | (Ω) | (μA) (V) | | Min | Max | |
| | | Min | Nom | Max | | Min | Max | | Min | Max | | | | | | |
| BZX84C2V4 | C8 | 2.2 | 2.4 | 2.6 | 100 | 1.7 | 2.1 | 600 | 2.6 | 3.2 | 50 | 50 | 1.0 | -3.5 | 0 | 450 |
| BZX84C2V7 | D8 | 2.5 | 2.7 | 2.9 | 100 | 1.9 | 2.4 | 600 | 3.0 | 3.6 | 50 | 20 | 1.0 | -3.5 | 0 | 450 |
| BZX84C3V0 | E8 | 2.8 | 3.0 | 3.2 | 95 | 2.1 | 2.7 | 600 | 3.3 | 3.9 | 50 | 10 | 1.0 | -3.5 | 0 | 450 |
| BZX84C3V3 | F8 | 3.1 | 3.3 | 3.5 | 95 | 2.3 | 2.9 | 600 | 3.6 | 4.2 | 40 | 5 | 1.0 | -3.5 | 0 | 450 |
| BZX84C3V6 | H8 | 3.4 | 3.6 | 3.8 | 90 | 2.7 | 3.3 | 600 | 3.9 | 4.5 | 40 | 5 | 1.0 | -3.5 | 0 | 450 |
| BZX84C3V9 | J8 | 3.7 | 3.9 | 4.1 | 90 | 2.9 | 3.5 | 600 | 4.1 | 4.7 | 30 | 3 | 1.0 | -3.5 | -2.5 | 450 |
| BZX84C4V3 | K8 | 4.0 | 4.3 | 4.6 | 90 | 3.3 | 4.0 | 600 | 4.4 | 5.1 | 30 | 3 | 1.0 | -3.5 | 0 | 450 |
| BZX84C4V7 | M8 | 4.4 | 4.7 | 5.0 | 80 | 3.7 | 4.7 | 500 | 4.5 | 5.4 | 15 | 3 | 2.0 | -3.5 | 0.2 | 260 |
| BZX84C5V1 | N8 | 4.8 | 5.1 | 5.4 | 60 | 4.2 | 5.3 | 480 | 5.0 | 5.9 | 15 | 2 | 2.0 | -2.7 | 1.2 | 225 |
| BZX84C5V6 | P8 | 5.2 | 5.6 | 6.0 | 40 | 4.8 | 6.0 | 400 | 5.2 | 6.3 | 10 | 1 | 2.0 | -2.0 | 2.5 | 200 |
| BZX84C6V2 | R8 | 5.8 | 6.2 | 6.6 | 10 | 5.6 | 6.6 | 150 | 5.8 | 6.8 | 6 | 3 | 4.0 | 0.4 | 3.7 | 185 |
| BZX84C6V8 | X8 | 6.4 | 6.8 | 7.2 | 15 | 6.3 | 7.2 | 80 | 6.4 | 7.4 | 6 | 2 | 4.0 | 1.2 | 4.5 | 155 |
| BZX84C7V5 | Y8 | 7.0 | 7.5 | 7.9 | 15 | 6.9 | 7.9 | 80 | 7.0 | 8.0 | 6 | 1 | 5.0 | 2.5 | 5.3 | 140 |
| BZX84C8V2 | Z8 | 7.7 | 8.2 | 8.7 | 15 | 7.6 | 8.7 | 80 | 7.7 | 8.8 | 6 | 0.7 | 5.0 | 3.2 | 6.2 | 135 |
| BZX84C9V1 | A9 | 8.5 | 9.1 | 9.6 | 15 | 8.4 | 9.6 | 100 | 8.5 | 9.7 | 8 | 0.5 | 6.0 | 3.8 | 7.0 | 130 |
| BZX84C10 | B9 | 9.4 | 10 | 10.6 | 20 | 9.3 | 10.6 | 150 | 9.4 | 10.7 | 10 | 0.2 | 7.0 | 4.5 | 8.0 | 130 |
| BZX84C11 | C9 | 10.4 | 11 | 11.6 | 20 | 10.2 | 11.6 | 150 | 10.4 | 11.8 | 10 | 0.1 | 8.0 | 5.4 | 9.0 | 130 |
| BZX84C12 | D9 | 11.4 | 12 | 12.7 | 25 | 11.2 | 12.7 | 150 | 11.4 | 12.9 | 10 | 0.1 | 8.0 | 6.0 | 10.0 | 130 |
| BZX84C13 | E9 | 12.4 | 13 | 14.1 | 30 | 12.3 | 14.0 | 170 | 12.5 | 14.2 | 15 | 0.1 | 8.0 | 7.0 | 11.0 | 120 |
| BZX84C15 | F9 | 13.8 | 15 | 15.6 | 30 | 13.7 | 15.5 | 200 | 13.9 | 15.7 | 20 | 0.05 | 10.5 | 9.2 | 13.0 | 110 |
| BZX84C16 | H9 | 15.3 | 16 | 17.1 | 40 | 15.2 | 17.0 | 200 | 15.4 | 17.2 | 20 | 0.05 | 11.2 | 10.4 | 14.0 | 105 |
| BZX84C18 | J9 | 16.8 | 18 | 19.1 | 45 | 16.7 | 19.0 | 225 | 16.9 | 19.2 | 20 | 0.05 | 12.6 | 12.4 | 16.0 | 100 |
| BZX84C20 | K9 | 18.8 | 20 | 21.2 | 55 | 18.7 | 21.1 | 225 | 18.9 | 21.4 | 20 | 0.05 | 14.0 | 14.4 | 18.0 | 85 |
| BZX84C22 | M9 | 20.8 | 22 | 23.3 | 55 | 20.7 | 23.2 | 250 | 20.9 | 23.4 | 25 | 0.05 | 15.4 | 16.4 | 20.0 | 85 |
| BZX84C24 | N9 | 22.8 | 24 | 25.6 | 70 | 22.7 | 25.5 | 250 | 22.9 | 25.7 | 25 | 0.05 | 16.8 | 18.4 | 22.0 | 80 |
| TYPE NO. | Marking | V _{Z1} Below @ I _{ZT1} = 2 mA (Note 1) | | | Z _{ZT1} Below @ I _{ZT1} = 2 mA | V _{Z2} Below @ I _{ZT2} = 0.1 mA (Note 1) | | Z _{ZT2} Below @ I _{ZT2} = 0.5 mA | V _{Z3} Below @ I _{ZT3} = 10 mA (Note 1) | | Z _{ZT3} @ I _{ZT3} = 10 mA | Max. Reverse Leakage Current I _R @ V _R | | Θ _{VZ} (mV/k) Below @ I _{ZT1} = 2 mA | | C (pF) @ V _R = 0 f = 1 MHz |
| | | (V) | | | (Ω) | (V) | | (Ω) | (V) | | (Ω) | (μA) (V) | | Min | Max | |
| | | Min | Nom | Max | | Min | Max | | Min | Max | | | | | | |
| BZX84C27 | P9 | 25.1 | 27 | 28.9 | 80 | 25 | 28.9 | 300 | 25.2 | 29.3 | 45 | 0.05 | 18.9 | 21.4 | 25.3 | 70 |
| BZX84C30 | R9 | 28 | 30 | 32 | 80 | 27.8 | 32 | 300 | 28.1 | 32.4 | 50 | 0.05 | 21.0 | 24.4 | 29.4 | 70 |
| BZX84C33 | X9 | 31 | 33 | 35 | 80 | 30.8 | 35 | 325 | 31.1 | 35.4 | 55 | 0.05 | 23.1 | 27.4 | 33.4 | 70 |
| BZX84C36 | Y9 | 34 | 36 | 38 | 90 | 33.8 | 38 | 350 | 34.1 | 38.4 | 60 | 0.05 | 25.2 | 30.4 | 37.4 | 70 |
| BZX84C39 | Z9 | 37 | 39 | 41 | 130 | 36.7 | 41 | 35 | 37.1 | 41.5 | 70 | 0.05 | 27.3 | 33.4 | 41.2 | 45 |
| BZX84C43 | A0 | 40 | 43 | 46 | 150 | 39.7 | 46 | 375 | 40.1 | 46.5 | 80 | 0.05 | 30.1 | 37.6 | 46.6 | 40 |
| BZX84C47 | B0 | 44 | 47 | 50 | 170 | 43.7 | 50 | 375 | 44.1 | 50.5 | 90 | 0.05 | 32.9 | 42.0 | 51.8 | 40 |
| BZX84C51 | C0 | 48 | 51 | 54 | 180 | 47.6 | 54 | 400 | 48.1 | 54.6 | 100 | 0.05 | 35.7 | 46.6 | 57.2 | 40 |
| BZX84C56 | D0 | 52 | 56 | 60 | 200 | 51.5 | 60 | 425 | 52.1 | 60.8 | 110 | 0.05 | 39.2 | 52.2 | 63.8 | 40 |
| BZX84C62 | E0 | 58 | 62 | 66 | 215 | 57.4 | 66 | 450 | 58.2 | 67.0 | 120 | 0.05 | 43.4 | 58.8 | 71.6 | 35 |
| BZX84C68 | F0 | 64 | 68 | 72 | 240 | 63.4 | 72 | 475 | 64.2 | 73.2 | 130 | 0.05 | 47.6 | 65.6 | 79.8 | 35 |
| BZX84C75 | H0 | 70 | 75 | 79 | 255 | 69.4 | 79 | 500 | 70.3 | 80.2 | 140 | 0.05 | 52.5 | 73.4 | 88.6 | 35 |

Note :

(1) Zener voltage is measured with pulse test current I_Z at an ambient temperature of 25 °C